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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,670	03/28/2001	Sorcha O'Callaghan	3446.US.P	2387

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EXAMINER	
MAIS, MARK A	
ART UNIT	PAPER NUMBER
2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/818,670	O'CALLAGHAN ET AL.	
	Examiner	Art Unit	
	Mark A. Mais	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-5 and 8-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-5 and 8-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 September 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 12, 2006 has been entered.

Claim Objections

2. Claims 3 and 8 are objected to because of the following informalities: they recite only "an Ethernet". The examiner interprets this to mean "an Ethernet packet". Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 3-5 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (USP 5,917,819).

5. With regard to claim 3, Yang et al. discloses a network switch for receiving data packets including header portions **[Abstract; Fig. 1, packet switch 8 receives packets which include a header used for determining I/O modules, col. 2, lines 39-51]**; and for selectively forwarding said data packets **[forwarding the packet to the appropriate IOMs for transmission, col. 1, lines 48-57]**, said switch comprising:

a register for receiving a header portion of an Ethernet packet **[Fig. 1, packet 24 received by I/O module 10; col. 2, lines 39-51]**;

a look-up engine operative to obtain associated data in response to the header portion **[Fig. 1, interpreted as the combination of the translation circuit 18 with identifier table 20 (col. 2, lines 38-45) and the CID/bitmask lookup table 14 (col. 2, lines 38-45)]**, wherein said associated data includes an initial port bitmask **[Fig. 3, IOM field 30 and multicast ID 28 are**

interpreted as a bitmask, col. 3, lines 20-27; Fig. 6, steps 70 and 72 disclose that the interpreted bitmask determines the respective IOM, col. 4, line 64 to col. 5, line 25] and

a network processor which is operative to perform a processing function in response to at least one of said header portion and said associated data **[Fig. 1, translation circuit 18 performs identifier lookup of the packet, col. 2, lines 38-45]**,

said network processor executing said processing function to cause modification of said initial port bitmask **[Fig. 4, CID/bitmask lookup table 14 is referenced and the subsequent CID 48 is overlaid onto the multicast ID, col. 3, line 60 to col. 4, line 12]**,

wherein said look-up engine provides for said network processor a first indication, said first indication indicating that said associated data has been obtained **[Fig. 6, completion of first stage processing of a multicast block 66 including step 70 (setting IOM field) and step 72 (assigning multicast ID) with subsequent processing in step 73 (forward to switch fabric), col. 5, lines 15-40]**;

said network processor is operative in response to said first indication to execute said processing function **[Fig. 6, completion of first stage processing of a multicast block 66 including step 70 (setting IOM field) and step 72 (assigning multicast ID) with subsequent processing in step 73 (forward to switch fabric), col. 5, lines 15-40]** and to provide to said took-up engine a second indication, said second indication indicating that said function has been executed **[Fig. 6, using CID/bitmask lookup table 14 in step 80 (get new CID) for bitmask overlay wherein step 82 (CID's three LSBs each equal "0") constitutes a second function indication, col. 5, line 40 to col. 6, line 3]**.

Yang et al. discloses a packet switch. Yang et al. does not specifically disclose Ethernet packets. However, those skilled in the art recognize that packet switching involves the movement of almost any type of packet (wherein a packet is regarded in the art as a generic term for a bundle of data, usually in binary form, organized in a specific way for transmission). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used an Ethernet packet instead of the packets disclosed in Yang et al. because the disclosed packet switching involves the movement of packets within a switch in order to perform a multicast transmission.

4. With regard to claim 8, Yang et al. discloses a network switch for receiving data packets including header portions **[Abstract; Fig. 1, packet switch 8 receives packets which include a header used for determining I/O modules, col. 2, lines 39-51]** and for selectively forwarding said data packets **[forwarding the packet to the appropriate IOMs for transmission, col. 1, lines 48-57]**, said switch comprising:

a register for receiving a header portion of an Ethernet packet **[Fig. 1, packet 24 received by I/O module 10; col. 2, lines 39-51]**;

a look-up engine operative to obtain associated data in response to the header portion **[Fig. 1, Fig. 1, interpreted as the combination of the translation circuit 18 with identifier table 20 (col. 2, lines 38-45) and the CID/bitmask lookup table 14 (col. 2, lines 38-45)]**, wherein said associated data includes an initial port bitmask **[Fig. 3, IOM field 30 and multicast ID 28 are interpreted as a bitmask, col. 3, lines 20-27; Fig. 6, steps 70 and 72**

disclose that the interpreted bitmask determines the respective IOM, col. 4, line 64 to col. 5, line 25]; and

a network processor which is operative to perform a processing function in response to at least one of said header portion and said associated data **[Fig. 1, translation circuit 18 performs identifier lookup of the packet, col. 2, lines 38-45]**,

said network processor executing said processing function to cause modification of said initial port bitmask **[Fig. 4, CID/bitmask lookup table 14 is referenced and the subsequent CID 48 is overlaid onto the multicast ID, col. 3, line 60 to col. 4, line 12]**; and

wherein said look-up engine provides for said network processor a first indication, said first indication indicating that said associated data has been obtained **[Fig. 6, completion of first stage processing of a multicast block 66 including step 70 (setting IOM field) and step 72 (assigning multicast ID) with subsequent processing in step 73 (forward to switch fabric), col. 5, lines 15-40]**; and

said network processor is operative to provide to said look-up engine a second indication, said second indication indicating that said modification has been performed **[Fig. 6, using CID/bitmask lookup table 14 in step 80 (get new CID) for bitmask overlay wherein step 82 (CID's three LSBs each equal "0") constitutes a second function indication, col. 5, line 40 to col. 6, line 3]**, and

said look-up engine is operative after providing said first indication to wait for said second indication before performing any further operation on said packet **[Fig. 6, a sequential operation of multicast block 66 as part of the first indication followed by step 76 (get port bitmap) and step 80 (get new CID) as parts of the second indication necessitates that the**

processor must wait at each stage before proceeding with the operation, col. 5, line 12 to col. 5, line 18].

Yang et al. discloses a packet switch. Yang et al. does not specifically disclose Ethernet packets. However, those skilled in the art recognize that packet switching involves the movement of almost any type of packet (wherein a packet is regarded in the art as a generic term for a bundle of data, usually in binary form, organized in a specific way for transmission). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used an Ethernet packet instead of the packets disclosed in Yang et al. because the disclosed packet switching involves the movement of packets within a switch in order to perform a multicast transmission.

5. With regard to claim 11, Yang et al. discloses a method of operating a network switch for receiving data packets including header portions **[Abstract; Fig. 1, packet switch 8 receives packets which include a header used for determining I/O modules, col. 2, lines 39-51]** and for selectively forwarding said data packets **[forwarding the packet to the appropriate IOMs for transmission, col. 1, lines 48-57]**, said method comprising:

receiving a header portion of an Ethernet packet **[Fig. 1, packet 24 received by I/O module 10; col. 2, lines 39-51]**;

operating a look-up engine to obtain associated packet forwarding data in response to the header portion **[Fig. 1, Fig. 1, interpreted as the combination of the translation circuit 18 with identifier table 20 (col. 2, lines 38-45) and the CID/bitmask lookup table 14 (col. 2, lines 38-45)]**, said forwarding data including an initial port bitmask **[Fig. 3, IOM field 30 and**

multicast ID 28 are interpreted as a bitmask, col. 3, lines 20-27; Fig. 6, steps 70 and 72 disclose that the interpreted bitmask determines the respective IOM, col. 4, line 64 to col. 5, line 25];

providing from said look-up engine to said network processor a first indication, said first indication indicating that said associated packet forwarding data has been obtained **[Fig. 6, completion of first stage processing of a multicast block 66 including step 70 (setting IOM field) and step 72 (assigning multicast ID) with subsequent processing in step 73 (forward to switch fabric), col. 5, lines 15-40]**;

executing a processing function by means of a network processor in response to at least one of said header portion and said associated packet forwarding data **[Fig. 6, completion of first stage processing of a multicast block 66 including step 70 (setting IOM field) and step 72 (assigning multicast ID) with subsequent processing in step 73 (forward to switch fabric), col. 5, lines 15-40]**, said processing function including modification of said initial port bitmask **[Fig. 4, CID/bitmask lookup table 14 is referenced and the subsequent CID 48 is overlaid onto the multicast ID, col. 3, line 60 to col. 4, line 12]** ;

operating said network processor in response to said first indication to cause said modification of said associated packet forwarding data **[Fig. 4, CID/bitmask lookup table 14 is referenced and the subsequent CID 48 is overlaid onto the multicast ID, col. 3, line 60 to col. 4, line 12]**;

providing to said look-up engine a second indication, said second indication indicating that said modification has been performed **[Fig. 6, using CID/bitmask lookup table 14 in step**

80 (get new CID) for bitmask overlay wherein step 82 (CID's three LSBs each equal "0") constitutes a second function indication, col. 5, line 40 to col. 6, line 3];

delaying any further operation of said look-up engine in relation to said Ethernet packet until said second indication is received by said look-up engine **[Fig. 6, a sequential operation of multicast block 66 as part of the first indication followed by step 76 (get port bitmap) and step 80 (get new CID) as parts of the second indication necessitates that the processor must wait at each stage before proceeding with the operation, col. 5, line 12 to col. 5, line 18]**; and

in response to said second indication providing by means of said look-up engine a final port bitmask for said Ethernet packet **[Figs. 4-5; CID/bitmask lookup table 14 is referenced and the subsequent CID 48 is overlaid onto the multicast ID, col. 3, line 60 to col. 4, line 12; the final port mask 36 is then generated for forwarding the packet to the appropriate port, col. 3, line 44 to col. 4, line 12]**.

Yang et al. discloses a packet switch. Yang et al. does not specifically disclose Ethernet packets. However, those skilled in the art recognize that packet switching involves the movement of almost any type of packet (wherein a packet is regarded in the art as a generic term for a bundle of data, usually in binary form, organized in a specific way for transmission). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used an Ethernet packet instead of the packets disclosed in Yang et al. because the disclosed packet switching involves the movement of packets within a switch in order to perform a multicast transmission.

6. With regard to claims 4 and 9, Yang et al. discloses that the look-up engine in response to the second indication causes the provision of a final port bitmask for the Ethernet packet **[Figs 5-6; when it is determined that the new CID's three LSBs each equal "0", then the packet is multiport-multicast transmitted based on the port bitmask from the CID/port bitmask lookup table 14 which is interpreted as a final port bitmask, col. 5, line 51 to col. 6, line 18]**.

7. With regard to claims 5 and 10, Yang et al. discloses that the associated data includes a field indicating replication of the Ethernet packet **[Fig 3, MC bit 32 indicates the multicast data packet, col. 3, lines 20-30]** and wherein the network processor is operative to access the field and to control a replication process for the Ethernet packet **[the processing of the multicast packet using the CID/bitmask lookup table 14 in determining the IOMs and ports for multicast transmission is interpreted as controlling the replication process, col. 3, line 60 to col. 4, line 12]**.

Response to Arguments

8. Applicant's arguments filed December 12, 2006 have been fully considered but they are not persuasive.

9. Applicant's argue that an Ethernet packet (wherein a packet is a generic term for a bundle of data, usually in binary form, organized in a specific way for transmission) is different than an ATM packet **[Amendment dated December 12, 2006, page 6, lines 8-15]**. The Examiner

agrees. Applicant's invention claims a packet switch which performs packet switching. Applicant's argue, apparently, that ATM packet switching is different than applicant's claimed packet switching. The examiner respectfully disagrees.

10. As noted above for independent claims 3, 8, and 11, using Ethernet packets is obvious in the art with reference to packet switching. Applicant's claimed packet switch receives packets and then processes them. Applicant's have not disclosed that that the processing performed within the claimed packet switch can/should only be done on an Ethernet packet. Specifically, Applicant's have not disclosed that using only an Ethernet packet solves any stated problem or is for any particular purpose other than an optimization of a known method of performing processing packets within a packet switch. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the type of packets processed within the packet switch of Yang et al. because such modifications are considered a mere design choice consideration, which fails to patentably distinguish over the prior art of Yang et al. In addition, changing the type of packets processed within a packet switch is interpreted as an optimum value for a known process. A discovery of an optimum value for a known process is obvious engineering. See In re Aller, 105 USPQ 233 (CCPA 1955).

11. Applicants argue that Yang et al. does not disclose the claimed second indication **[Amendment dated December 12, 2006, page 7, line 3]**. Applicants also argue that the second indication is performed only within one IOM **[Amendment dated December 12, 2006, page 7,**

lines 9-11]. Applicants argue, apparently, that the second indication must be sent to another IOM. The examiner respectfully disagrees.

12. As noted above for independent claims 3, 8, and 11, Yang et al. discloses, in Fig. 6, using the CID/bitmask lookup table 14 in step 80 (get new CID) for the bitmask overlay wherein step 82 (CID's three LSBs each equal "0") constitutes a second function indication **[col. 5, line 40 to col. 6, line 3].** Thus, CID/bitmask lookup table 14, does, in fact, know that the second indication is the new CID's three LSBs each equal "0." This is true for each IOM within the packet switch disclosed in Yang et al. **[see, generally, that Yang et al. discloses multiple IOMS 10 within the packet switch (Fig. 1)]**. Thus, the second indication occurs within *each* IOM—especially when there is going to be a multicast-multiport message sent **[See, for example, Fig. 1, wherein the multicast-multiport message could be sent on all switches and all ports]**.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

(a) Vu (USP 6,940,856), Multicast buffered switch and method for operating a multicast buffered switch.

(b) Hotta (USP 6,836,481), Packet conversion device and packet conversion method.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark A. Mais whose telephone number is 572-272-3138. The examiner can normally be reached on M-Th 5am-4pm.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MAM
December 13, 2006

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